

**REMARKS**

Applicant thanks the Examiner for the careful review of this application. Applicant has amended claims 1, 17 and 18, added new claims 23-25, and cancelled claim 16 without prejudice. Applicant has provided amendments to fix technical errors in the claims and to clarify the claims. No new matter has been added.

In light of the amendments, Applicant submits that the objections are rendered moot, and Applicant thus requests withdrawal of such rejections. Applicant further submits that the claims as amended have not been shown by Crewe, Nickels, or the combination thereof, either in terms of anticipation or obviousness. Applicant does not concede the propriety of the previous rejections. Rather, Applicant has clarified the claims in an attempt to advance prosecution of the application.

Regarding the objection to claim 16, Applicant does not concede that this claim in any way represents new matter. In particular, Applicants submits that one may provide an example of a structure corresponding to claim 16 as one embodiment of the structure depicted in Fig. 4, for example. However, Applicant does not contend that the structure of Fig. 4 can only be implemented in this form. Moreover, in the interest of advancing prosecution, Applicant has cancelled claim 16.

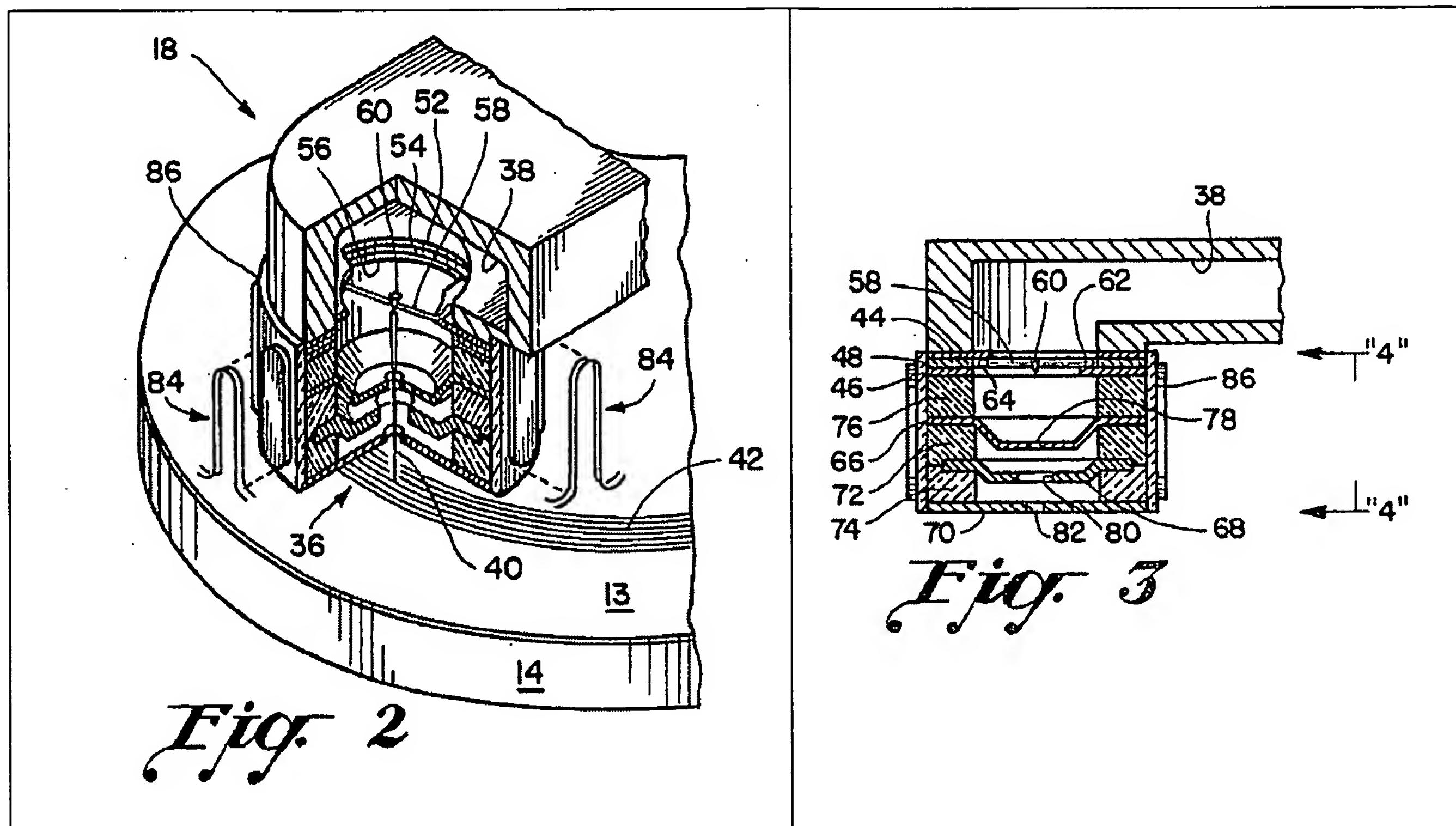
**The Obviousness Rejections Fail to Provide Claimed Elements**

Applicant understands the following rejection to be in effect, from page 3 of the Office Action:

**Claims 1-3, 10, 11, 14-16, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crewe U.S. Patent No. 4,760,567 in combination with Nickel U.S. Patent Application Publication 2003/0007443 or Jin U.S. Pat. No. 7,068,582; further in combination with Ikeda et al. U.S. Patent No. 4,817,053, and further in view of Redlich et al. U.S Pat. No. 3,737,589.**

Applicant respectfully traverses this rejection as failing to provide a limitation of the claims, either in amended or in unamended form. Turning first to claim 1, Applicant submits that at least the window of claim 1 is not provided as alleged in the Office Action. (The Office Action

alleges that similar statements can be made for claim 18.) The Office Action specifically alleges that 70 and 82 of Crewe provide a window which seals the housing. Electrode 70 of Crewe is used to help manage the apparatus of Crewe, and is thus not something which would be a window, or transmissive to electrons (see Crewe at col. 11, lines 1-8). Moreover, an aperture (e.g. aperture 82) is a hole in a structure, rather than a window. See, e.g., Figs. 2 and 3 of Crewe, wherein the aperture 82 is illustrated.



It is not a window, or a transmissive window, as there is no physical structure in the aperture. One cannot read the term “window” to mean an absence of structure, such as one finds in the case of an aperture or an opening – the window provides additional features such as sealing of an evacuated environment, which are substantially different from an open environment. Thus, Crewe fails to provide the element alleged to be present in Crewe.

#### **The Combination Teaches Away From The Claimed Invention**

Additionally, the cited combination actually teaches away from the claimed invention in this regard. Jin provides a system which uses electron beams to generate x-rays, which are then used on the recording surface. See, e.g., Jin, Figs. 7A and 7B. The x-rays result from the electron beam impinging an x-ray generating metal. See id.

FIG. 7A

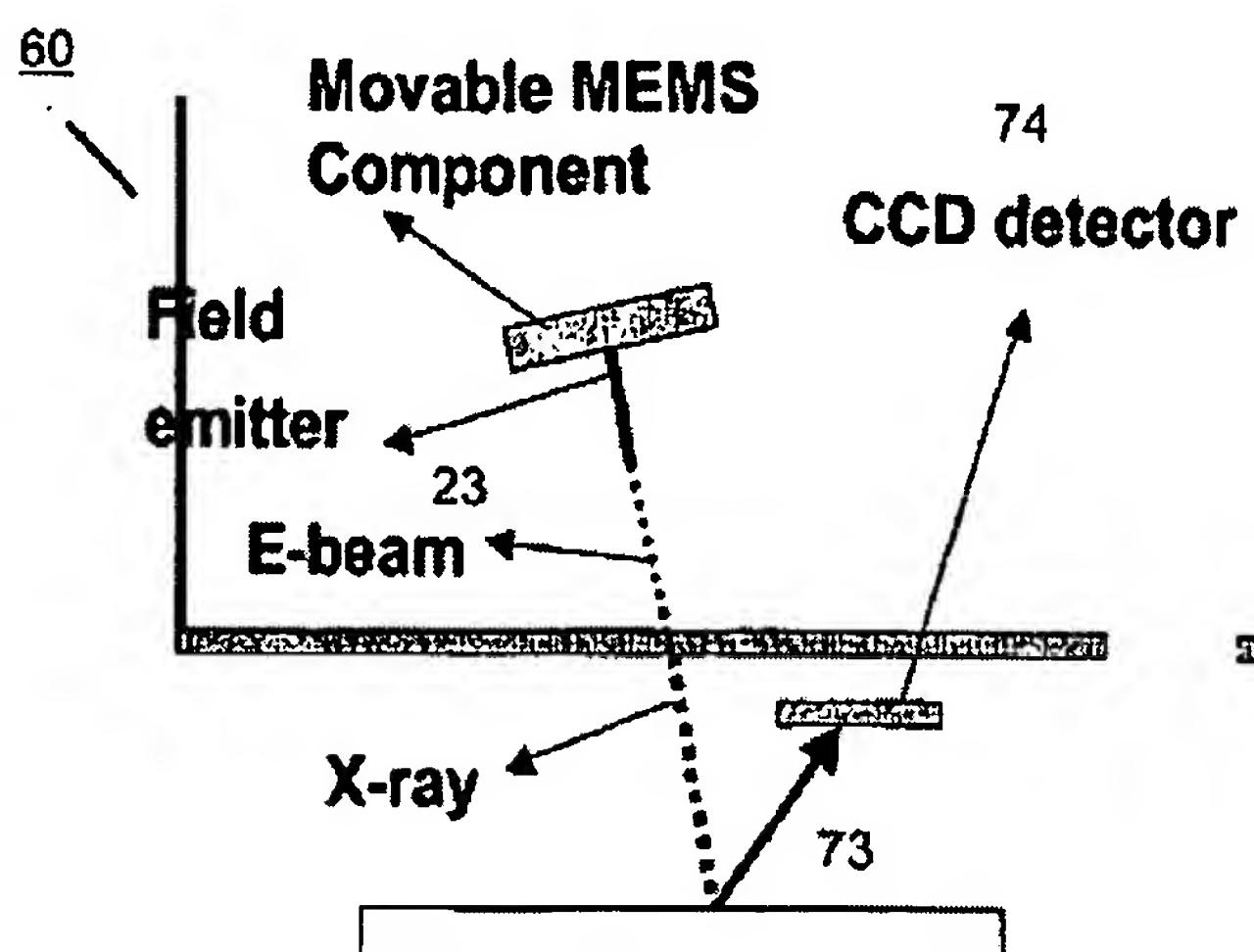
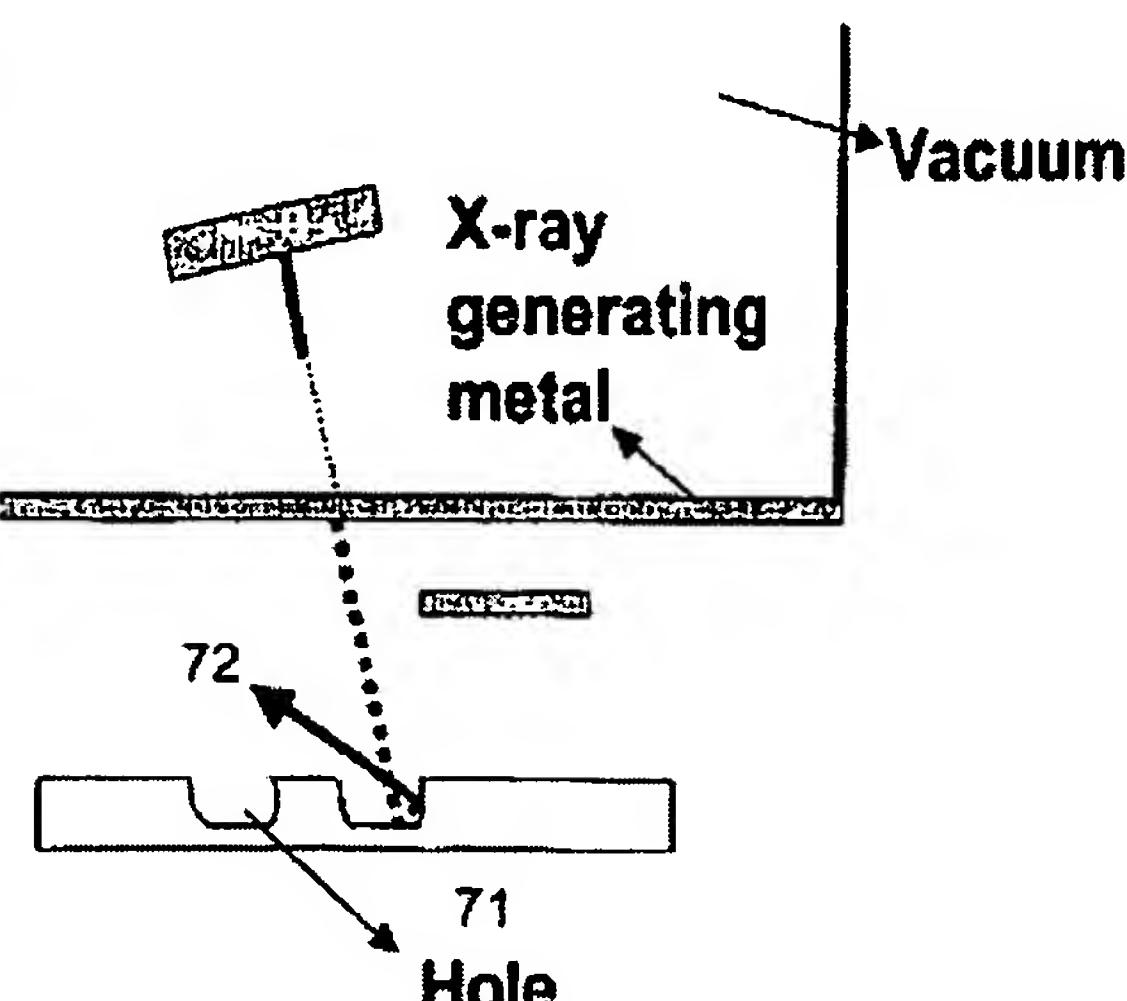


FIG. 7B



This is in direct contrast to the claimed invention, which uses a carbon nanotube to generate electrons and then uses those electrons for purposes of recording or reading. Jin not only does not have a window which is transmissive to electrons, it takes an entirely different approach by using x-rays instead of electrons.

In contrast to Jin, Ikeda uses an aperture which does not have any physical structure, as can be seen at Fig. 2 of Ikeda. Thus, Ikeda also does not include any structure corresponding to the window of claims 1, 17 and 18. As with Crewe, Ikeda teaches that a window is not needed, that an electron beam can be generated sufficiently without using a sealed housing or container, and thus teaches away from the claimed invention. Moreover, Ikeda cannot disclose a detector which is mounted on a window, as Ikeda has no window – thus illustrating another claimed requirement which is not present in the cited prior art as articulated in the Office Action.

There are other conflicts within the cited references. For example, Jin illustrates a movable MEMS component, thus eliminating the need for deflection electrodes as claimed. The Office Action suggests that one could modify the combination of Jin and Crewe to incorporate deflection electrodes of Ikeda. To do so, one must ignore the teaching of Jin that a movable component emitting an e-beam is a preferable alternative.

### The Cited References Evidence a Long-Felt Need In The Art

Additionally, the very references suggest that there is a long-felt need in the art to solve the problem the claimed invention deals with. Crewe and Ikeda represent different efforts in the 1980s (each was claims priority to 1986). Jin represents a different approach in 2002. Whether Redlich is an appropriate reference or not, it dates back to 1971. Thus, there is a long-felt need to find a solution provided by the claimed invention, and there are numerous other attempts to find this solution which have not succeeded.

### Claim 17 Further Claims Elements Not Provided By The Office Action

Applicant understands the following rejection to be in effect, from page 6 of the Office Action:

**Claims 12, 13, 17, 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crewe U.S. Patent No. 4,760,567 in combination with Nickel U.S. Patent Application Publication 2003/0007443 or Jin U.S. Pat. No. 7,068,582; further in combination with Ikeda et al. U.S. Patent No. 4,817,053, and Redlich et al. U.S Pat. No. 3,737,589, and/or further in view of Nagai et al. U.S. Patent No. 5,227,700.**

Applicant respectfully traverses this rejection as failing to provide a limitation of the claims, either in amended or in unamended form. In particular, claim 17 specifically claims a boron nitride window, and no such window is provided in Nagai or any other reference. The Office Action alleges that this is an obvious design choice, but no further evidence is provided to support this allegation. Applicant respectfully requests that any such allegation be supported by a teaching in the prior art in any future rejection.

Applicant further submits that Nagai reinforces the points made previously with regard to the combination used to reject claims 1 and 18. Nagai uses a window for purposes of sealing a very complex device, involving a laser, excitation material which generates an electron beam, and a detector 12 which can be in or out of the evacuated container (see Nagai, col. 1, lines 59-60).

**It is noted that the detecting electrode 12 can be provided inside the vacuum vessel 10.**

Thus, the evacuated container is not provided for the same reasons as in the claimed invention (providing a small evacuated space that is easier to manage and build). Moreover, it is not clear what one would use the Nagai structure for. Nagai interposes the detector in the generated beam to provide a feedback loop which helps regulate the beam. How this would work with a device such as that in Crewe, where the beam clearly impinges on media (which is not a detector) or Jin (where the beam is used to generate x-rays) is not clear at all. One who attempted to use a laser to excite material to produce electrons would find it challenging to provide a small form-factor disk drive.

**The Dependent Claims Also Must Be Allowed**

Applicant does not attempt to address each rejection of each dependent claim. However, Applicant does not concede the propriety of the rejections of the dependent claims. Each claim depends from an allowable independent claim, and thus is also allowable.

**The Amended and New Claims Further Distinguish From The Art**

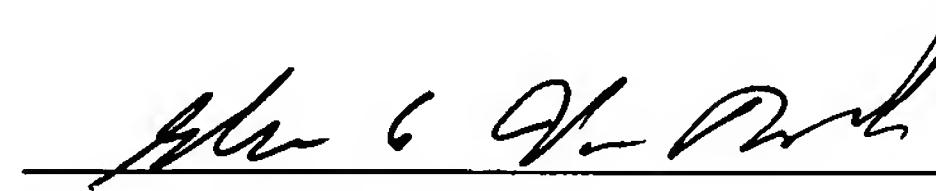
Applicant has amended claims 1 and 18 to clarify that the window is transmissive to an electron beam from the carbon nanotube. Applicant submits that this further distinguishes from the prior art, as cited by the Office Action. Additionally, Applicant has added new claims 23-25. Each of these claims recites limitations supported by the application as filed. Claims 23 and 24 refer to arrangement of carbon nanotube heads, and provide for an advantage in that they provide for coverage of media in a drive without crosstalk between heads. Claim 25 further provides the advantage of a stationary head, unlike that of at least Crewe and Jin, which call for heads which also move relative to moving media. The stationary nature of the heads provides for better reliability and increased ease of manufacture.

### CONCLUSION

Applicant submits that all pending claims are patentable, and respectfully requests an early Notice of Allowance. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,

Date: August 30, 2010

  
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